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ABSTRACT

The complexity and rapid expansion of the entire field of psychology make it appropriate to speak of "psychologies" when acknowledging the need for specialization of training and expertise. Nevertheless, unifying trends (UTs) exist in psychology, even though there can be no single set of theoretical principles to account for all empirical findings. UTs can extend in various directions, such as across theoretical orientations, across major fields of specialization, across methodologies, across cultures, across age levels, between theory and empirical research, and between basic science and practice. For example, the following UTs are currently observable in the field of psychometrics: recognition of psychological trait hierarchies; research on trait formation; the study of interactions of traits and situations; linkage between cognitive and affective variables; the study of the contributions of heredity and environment; the study of psychological testing in context; and contributions of cognitive psychology. UTs are also apparent in other areas of psychology; two examples are the evolving linkage between the experimental psychology of learning and the educational psychology of instruction, and an integrative movement in psychotherapy. Some conspicuous instances of the reverse trend are evident, in which new developments are treated as revolutionary. In such an approach, existing ideas, theories, or methods are discarded to make room for new ones. Such a strategy may yield short-term benefits for the individual psychologist, but it tends to retard the progress of psychology as a science, its effectiveness in solving practical problems, and its acceptance and credibility by the public. A 116-item list of references is included. (SLD)

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ARE THERE UNIFYING TRENDS IN THE PSYCHOLOGIES OF 1990?

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ARE THERE UNIFYING TRENDS IN THE PSYCHOLOGIES OF 1990?

First let me clarify the title of my paper. I plan to talk, not about psychologists, but about psychology. Psychologists are multidimensional beings. The substantive body of psychological knowledge that they use represents only one of these dimensions. Psychologists also differ in what they do with this knowledge -- teach it, conduct research in it, or apply it in solving many different kinds of practical problems; they differ in where they work, the setting in which they function; they differ in type of populations with which they work; and still other dimensions could undoubtedly be identified. Moreover, many psychologists occupy more than one position on a single dimension -- one person may serve in diverse roles.

The complex classification of individual psychologists resulting from the multiplicity of overlapping categories is reflected in the heterogeneous array of APA divisions, among which different dimensions are intermingled as bases of classification. Small wonder that the successive attempts to simplify the structure of the APA have met with resistance (Hilgard, 1987; VandenBos, 1989). I recall especially an example from the 1950s, when Dorothy Adkins, a former Recording Secretary of APA and subsequently member of its Board of Directors, applied factor analysis to the

divisional membership of APA. At that time, there were 17 divisions, with substantial overlapping membership. Even then, many people felt that there were far too many divisions. Because Adkins followed Thurstone's criterion of simple structure in rotating axes, she called her report "The Simple Structure of the American Psychological Association" (Adkins, 1954). Both the pun and the irony in that title were deliberate. Subsequent attempts to apply the results of the Adkins analysis in consolidating and reducing the number of APA divisions were strongly rejected. Psychologists are aware and proud of their multidimensionality and hence object to identification with any single category.

Although I have given much thought to the organization of psychologists and of the APA, that is not the topic I am discussing today. I can only say that, in regard to APA organization, I agree with and support the points made by Ray Fowler in his 1989 APA Presidential Address (Fowler, 1990). But today I want to talk about psychology as a substantive body of knowledge that psychologists use in their work, whatever that work may be.

In the title of my talk, I use the plural, psychologies, in recognition of the need for specialization of training and expertise within psychology. The complexity and rapid expansion of the entire field require the individual to specialize in order to attain sufficient depth

of knowledge to make an effective contribution to either research or practice. We can retain adjectival specialties, such as developmental psychology, or social psychology, while recognizing a common core of methods and concepts and maintaining communication across specialties. Nor do I see any conflict between the existence of adjectival psychologies and the promotion of the unifying trends I wish to discuss.

APPROACHES TO UNIFICATION IN PSYCHOLOGY

Unifying trends in psychology can occur at different levels of generality. At the broadest level, the unity of all psychology as a scientific discipline has received increasing attention since midcentury. At this level of generality, the search for "grand unifying principles" has provoked some sharp controversy. On the negative side, overall theoretical unification of psychology has been variously characterized as currently unattainable, intrinsically impossible, and probably undesirable (Gardner, 1988, August; Koch, 1981; Viney, 1989; see also Staats & Mos, 1987 and Rychlak, 1989). It would certainly be hazardous to insist that, for psychology to survive as a distinct discipline, it must provide a single set of theoretical principles to account for all empirical findings. Achieving unity at this level could indeed have some adverse effects. It could encourage distortion of facts to fit the theory, or lead to the exclusion of certain

areas of investigation as not belonging properly in psychology. It also suggests a static concept of knowledge, not conducive to free imaginative exploration of alternatives.

On the positive side, a major, long-term program aimed at unification across all psychology has been in progress for several decades in the work of Arthur Staats (1963, 1970, 1975, 1981, 1983, 1987a, 1987b). Designated Social Behaviorism, Staats' approach takes learning in its broadest sense as a likely basis for unifying psychological knowledge. While striving for over-all theoretical integration, Staats now recognizes the various pitfalls in the way of achieving unification at its highest level. Hence, he recommends and has been pursuing integration at intermediate, narrower levels as steps toward his ultimate goal. At such intermediate levels, unification is also likely to encounter less resistance from confirmed adherents of conflicting theoretical orientations. There is now a growing realization within several fields of psychology that unification at intermediate levels of generality is well worth pursuing for its own sake, regardless of one's views about the likelihood and the desirability of achieving total unification.

This being the year 1990, which is the one-hundreth anniversary of the publication of William James' Principles of Psychology, it is appropriate to note that, in several of

his writings, James expressed views about unification that appear timely and useful today (James, 1890, 1907/1978). In line with his pluralistic view of the universe, he did not favor one grand, all-embracing theory of psychology. He did, however, grant that working toward such a goal could be beneficial, provided it was not forcibly imposed on the available empirical data.

At the same time, James clearly advocated and practiced unification at lower levels of generality. In his lecture on "The One and the Many" (James, 1907/1978), he stated, "acquaintance with reality's diversities is as important as understanding their connexion" (p. 65) and again, "There are innumerable kinds of connexion that special things have with other special things; and the ensemble of any one of these connexions forms one sort of system by which things are conjoined" (p. 67). His attitude toward intermediate level unification is also illustrated in the Principles (James, 1890). Although not himself especially interested in gathering experimental data, he was firmly committed to the empirical method. In the Principles, he provided a thorough survey of empirical psychological findings then available; and he consistently linked the empirical findings through his own theoretical interpretations. He seemed to be constantly looking for convergences of findings from widely different sources and obtained by diverse methods. For example, in the chapter on memory, he incorporated materials

that ranged from Ebbinghaus' studies with nonsense syllables to hypnosis, aphasias, and double personality (James, 1890, vol. 1, chap. 16). This approach parallels current efforts to integrate laboratory and naturalistic research on memory by highlighting the adaptive function of memory (see, e.g., Neisser & Winograd, 1988).

UNIFYING TRENDS IN PSYCHOMETRICS

Let me now turn to examples of unifying trends currently observable within my own field of specialization, psychometrics. I define this field methodologically to include psychological testing and statistical analysis, and substantively as covering the nature and sources of individual differences, that is, differential psychology.

Trait Hierarchies. The first example concerns the identification of psychological traits through factor analysis. Beginning with Spearman's (1927) theory, with its emphasis on a single g factor, this research soon led to the identification of several broad group factors, some found by Spearman's own students and recognized by him. Most were identified by American investigators, notably Thurstone (1938) and Guilford (1967). Over the years, there was a proliferation of narrower and narrower factors, most of which represented a further breakdown of the earlier broad factors. Concurrently, there developed sharp controversies among the proponents of different trait theories. Even today there are a few surviving exponents of g, on the one

hand, and of particular patterns of multiple aptitudes, on the other. In the meantime, there have been methodological developments demonstrating that the different solutions are mathematically equivalent and transposable from one to another (Harman, 1976, chap. 15; Schmid & Leiman,1957). There have also been theoretical developments in the form of trait hierarchies (for ref., see Anastasi, 1985b, pp. 130-133; 1988b, pp. 387-388).

It is the concept of trait hierarchies that represents the convergence of the various conflicting theories. It is now coming to be widely recognized that individual differences in intellectual functioning can be described at different levels of generality, from a single common factor within a whole set of variables through increasingly narrower factors at successively lower levels. For different practical applications, one or another level of this hierarchy is most appropriate. No one level and no one set of traits corresponds to the basic, universal human abilities. The trait hierarchy thus provides a comprehensive, theoretical model that permits practical flexibility in test development and use for specific purposes. The traits identified through factor analysis are simply an expression of observed (and measured) behavioral consistencies; they are not underlying causal entities. And this leads me to my next question.

Trait Formation. How are traits formed? What determines the behavioral consistencies from which traits are derived? In contrast to trait development, which refers only to the individual's relative standing in different traits, trait formation refers to the organization of behavior into the very traits in terms of which the individual's performance is described. For example, it has been repeatedly shown that an individual may improve his or her performance in quantitative or verbal aptitude by appropriate learning procedures. But my present question is more fundamental: What brings about the correlational pattern that leads to the emergence of a verbal trait or a quantitative trait in the first place?

Several mechanisms have been proposed to explain trait formation. One type of explanation focuses on the contiguity or co-occurrence of learning experiences (Anastasi, 1936; Carroll, 1966; Vernon, 1961). For example, children are likely to develop a broad verbal-educational factor running through all activities learned in school. A narrower factor of numerical aptitude may result from the fact that all mathematical processes tend to be taught together, by the same teacher in the same classroom. Hence, the child who is discouraged, bored, or antagonized during the math period will tend to lag behind in learning all these processes; the one who is stimulated and gratified in the math class will tend to learn well all that is taught in

that class period, and to develop attitudes that will advance his or her subsequent mathematical learning.

A second type of explanation, which has received considerable attention in research on trait formation, is that of differential transfer of training. Some investigators have concentrated on different aspects of acquired knowledge, such as concepts, cognitive skills, information-processing strategies, or learning sets, while others have proposed a comprehensive mechanism applicable to all forms of learning (Carroll, 1966; Ferguson, 1954, 1956; Tryon, 1935; Whiteman, 1964). Moreover, because one's culture influences what shall be learned at each age, different cultural environments may lead to the formation of different trait patterns. The breadth of the transfer effect determines whether the resulting trait is broad, like verbal comprehension, or narrow, like a specialized perceptual skill.

Research on trait formation offers opportunities for convergence and unification in several directions. The statistical studies on traits have thereby been linked to: (1) experimental learning studies with both humans and animals (Anastasi, 1936; pp. 906-908; Anastasi, 1986, pp. 186-189; Burns, 1980; Staats, 1981, 1983; Staats & Burns, 1981; Staats, Staats, Heard, & Finley, 1962); (2) developmental studies of changing ability patterns with age (Anastasi, 1970, pp. 901-902; 1986, pp. 189-191; Lerner,

1986); and (3) cross-cultural studies on the composition of intelligence, as well as similar comparative studies among other populations (socioeconomic, occupational, geographic, etc.) that differ in experiential histories (see Anastasi, 1986, pp. 191-196).

Traits and Situations. Another angle from which traits have been investigated compares trait variance with situational variance in behavioral differences. A long-standing controversy regarding the generalizability of personal traits versus the situational specificity of behavior reached a peak in the 1960s and 1970s (Mischel, 1968; see also Anastasi, 1983b). In its initial stages, this controversy involved in part the rejection of an outdated view of traits as fixed, underlying causal entities, a view that psychometricians themselves had been criticizing for several decades. Commenting on the rarity of this stereotype of a "trait theorist," Jackson and Paunonen (1980) wrote in the 1980 Annual Review of Psychology, "Like witches of 300 years ago, there is confidence about their existence, and even possibly their sinister properties, although one is hard pressed to find one in the flesh or even meet someone who has" (p. 523). It seems to be a popular sport to fabricate a description of what psychometricians allegedly believe and then to demonstrate the obvious falsity of the belief. This is the familiar technique of setting up a straw person and then

demolishing it. The psychometric barn is littered with a superabundance of loose straw.

With regard to situational specificity, it is much more characteristic of affective, personality traits than it is of abilities. For example, a person may be quite outgoing and sociable at the office, but shy and reserved at social gatherings. Extensive empirical evidence has been assembled (Mischel 1968; Peterson, 1968) showing that individuals do exhibit considerable situational specificity in several noncognitive dimensions, such as aggression, social conformity, dependency, honesty, and attitudes toward authority. Part of the explanation for the higher cross-situational consistency of cognitive than of noncognitive functions may be found in the greater standardization of the individual's reactional biography in the intellectual than in the affective domain (Anastasi, 1970, 1983a). The formal school curriculum, for example, contributes to the development of broadly applicable cognitive skills in the verbal and numerical areas. Affective development, on the other hand, occurs under far more haphazard conditions. Moreover, in the affective domain, the same response may lead to social consequences that are positively reinforcing in one situation and negatively reinforcing in another. The individual may thus learn to respond in quite different ways in different contexts.

The gradual abandonement of extreme views and eventual rapprochement in the trait-situation controversy led to a more comprehensive and flexible model of individual behavior (Mischel, 1977, 1979; Mischel & Peake, 1982; Epstein & O'Brien, 1985). The intermingling of trait and situational components is illustrated by the finding that individuals differ in the extent to which they alter their behavior to meet the demands of each situation. In this trait of social discriminativeness (Mischel, 1979), moderate inconsistency indicates effective and adaptive flexibility, while excessive consistency indicates maladaptive rigidity. Another example of the mingling of trait and situational concepts is provided by test anxiety, a well established trait that is itself defined in part by situational specifications.

Cognitive and Affective Variables. Another linkage that is rapidly emerging is that between cognitive and affective variables (Anastasi, 1985a). In psychometrics, the artificial separation between abilities and so-called personality traits has been perpetuated by the available testing instruments. In interpreting test scores, however, personality and aptitudes cannot be kept apart. An individual's performance on an aptitude test, as well as his or her performance in school, on the job, or in any other context, is influenced by his or her achievement drive, persistence, value system, presence or absence of

handicapping emotional problems, and other characteristics traditionally classified under the heading of "personality."

There is a considerable body of data indicating the effects of transitional affective states on the individual's current performance. (see Anastasi, 1985a; Kanfer, Ackerman, & Cudeck, 1989, Part IV; Snow & Farr, 1987). Even more significant, however, is the cumulative effect of more enduring dispositions, or personality traits, on the development of aptitudes. Relevant data have come from several types of research, including long-term longitudinal studies (Eichorn, Clausen, Haan, Honzik, & Mussen, 1981) and, more recently, the application of structural equation modeling to the analysis of causal relations (Shavelson & Bolus, 1982). The findings suggest that the prediction of a person's subsequent intellectual development can be substantially improved by combining information about motivation, attitudes, and self-concept with scores on aptitude tests.

Of special relevance are recent studies of infant development. Several investigators have found substantial correlations between ratings of infant behavior on personality variables and subsequent cognitive development assessed by such instruments as the Bayley Scales of Infant Development and the Stanford-Binet (Birns & Golden, 1972; Matheny, Dolan, & Wilson, 1974; McCall, 1976; Yarrow & Pedersen, 1976). Infants who exhibit positive affect,

active interest, and responsiveness in a test situation are likely to learn more and to advance faster in intellectual development. They are also likely to response favorably in later, academic activities that require interaction with adults in goal-oriented tasks. A further advantage arises from the influence such infant behavior has on the behavior of adult care-givers, which will in turn enhance the child's opportunities for learning (Haviland, 1976).

More specifically, studies of the environmental-mastery motive in infants have revealed some promising relations to subsequent measures of intellectual competence. Environmental-mastery behavior is characterized by the infant's observation, exploration, and manipulation of his or her environment. By its very nature, this motive should be a major contributor to cognitive development. And there is increasing evidence in the experimental literature that it does so contribute (White, 1978; Hrncir, Speller, & West, 1985; Yarrow & Messer, 1983) In fact, some of the findings suggest that early indicators of a child's environmental-mastery motivation may be a better predictor of later intellectual competence than are earlier measures of competence. Current research on infancy is leading toward a rapprochement between the study of affective and cognitive development. It may help to bring about a more integrated utilization of affective and cognitive data in the interpretation of test results at any age level.

Heredity and environment. One of the most durable controversies in psychometrics concerns the role of heredity and environment in individual differences. Quite early, it was recognized that traits could not be classified as being either hereditary or acquired, but that it was a question of how much of the variance was attributable to one or the other. Investigators were still labelled with the stereotype of hereditarians or environmentalists, depending on where they placed the major emphasis. However, the controversy was commonly considered settled, because both kinds of investigators generally asserted that, of course, heredity and environment are equally important - presumably acknowledging the fact that, if you took away either one, you would not have a living organism. Moreover, they often added that heredity and environment always interact -- that magic word!

These statements exemplify the kind of superficial eclecticism that fails to be truly integrative; they are meaningless statements for several reasons. First, heredity and environment are not unitary constructs; each covers a vast number of variables, and it is these variables that interact with one another, both within and between the two categories. Second, the large majority of studies still deal with either hereditary or environmental variables; rarely are the two joined in a single study to permit the testing of hypotheses about interaction. Some investigators

study the effects of learning on individual performance, either through naturalistic studies or through experimental interventions (e.g., Hunt, Mohandessi, Ghodssi, & Akiyama, 1976). Other investigators analyze familial resemblances by correlational procedures, usually ending with a heritability index (see Anastasi, 1988b, pp. 364-367; 1971; 1972; Lerner, 1986, pp. 122-138). This index gives the proportional contribution of heredity to the total variance of a particular trait in a specified population under existing conditions. The information provided by this index thus is quite limited: it applies only under the hereditary and environmental conditions in effect at the time; it refers to populations, not individuals; and it does not indicate the degree of modifiability of the trait.

In my Presidential Address to APA division 1 in 1957, I suggested that investigators may have been asking the wrong questions about heredity and environment and that a more productive approach might be to ask the question "How?" (Anastasi, 1958) Rather than asking how much of the variance is attributable to heredity and how much to environment, it would be better to investigate the modus operandi of hereditary and environmental influences in the development of individual differences. What is the chain of events whereby particular hereditary and environmental variables interact to produce the behavioral differences observed at any given stage of individual development?

The approach proposed in that paper has had some direct impact on subsequent treatment of the heredity-environment problem, especially among developmental psychologists (Lerner, 1986, chaps. 3,4,5; Lerner & Busch-Rossnagel, 1981; Lipsitt, 1970, pp. 151-152; see also Cravens, 1978, pp. 269-270). Combined studies of the influence of genotypes and learning histories of individuals have been rendered more feasible by certain methodological developments, such as sequential designs,. which combine features of traditional cross-sectional, longitudinal, and time-lag studies; and by structural equation modeling, which permits analyses of causal relations among empirically assessed constructs (Gustafson, 1989; McCardle, 1989).

From another angle, some investigators have proposed that the effect of genes on aptitudes may be mediated by affective and motivational factors (Dreger, 1968; Hayes, 1962; Scarr, 1981). That genes could directly determine individual differences in, for example, verbal or mathematical aptitude seems unlikely in the light of current knowledge about the complexities of behavioral development. What is needed is more information about the many intervening steps in the etiological chain from genes to behavior. The role of motivation may represent one such step. The rationale is that abilities develop through the individual's motivationally determined learning history. Supporting evidence is provided by a growing body of animal

studies, as well as recent research with human infants (Hayes, 1962; Scarr, 1981; Scott & Fuller, 1951; Searle, 1949; Whimbey & Denenberg, 1966; Yarrow et al., 1983). This research also ties in with the previously mentioned linkage between cognitive and affective variables.

Testing in Context. My next example pertains directly to psychological testing, an area where misconceptions abound -- among the lay public as well as among some psychologists. My 1966 Presidential Address to Division 5 (APA Division of Evaluation, Measurement, and Statistics) opened with the sentence, "It is the main thesis of this paper that psychological testing is becoming dissociated from the mainstream of psychology" (Anastasi, 1967, p. 297). I went on to explain that this dissociation accounted for many of the criticisms underlying the popular antitest revolt, criticisms that frequently arose from actual misuses of tests and misinterpretations of test scores. Such misuses in turn resulted from inadequate knowledge about the behavior domain that any particular test was designed to assess. Many vexing problems and controversies have arisen from this source: the futile search for "culture-free tests", the detection and control of test bias, the misapplication of norms, and the misconstrued rises and falls of population scores over time, to name only some of the most conspicuous issues (Anastasi, 1985b, 1989, 1990).

What such problems have in common is a failure to consider the context in which all behavior occurs; from this it follows that all psychological measurement, too, must consider context. Test scores tell us how well individuals perform at the time of testing, not why they perform as they do. To find out why, we have to evaluate test scores within the person's antecedent context; we need to delve into the individual's experiential background. Usually test scores must also be evaluated within the person's anticipated context. What is the setting -- educational, occupational, societal -- in which this person is expected to function and for which he or she is being assessed?

The need for better informed test users has been widely recognized in recent years (Eyde, Moreland, Robertson, Primoff, & Most, 1988). Some investigators have focused on "measurement literacy," or the statistical knowledge required for proper quantitative interpretation of test scores (Lambert, 1989, August). Equally important, although less obvious, is the psychological literacy required for substantive interpretation of test performance.

The contextual approach to test interpretation has been variously discussed and advocated under such titles as the "assessment of personal competence" (Sundberg, Snowden, & Reynolds, 1978) or simply "intelligent testing" (Kaufman, 1979; Wesman, 1968). The increasing attention given to such forms of "testing in context" represents a significant

unifying trend that is bringing psychological testing closer to the basic science of psychology.

Cognitive Task Analysis versus Correlational Analysis. Another example of unification within psychometrics pertains to the contributions of cognitive psychology. The construction of psychological tests has heretofore relied largely on correlational methods in item selection and in the assessment of reliability and validity. Such analyses are applied to the products of thinking, available in the form of item responses and test scores. A different approach is followed in cognitive task analysis, which focuses on the processes of thinking, whereby the products are constructed by the test taker.

Task analysis, in one form or another, has been with us for many years. Job analysis is one of its forms, which has itself evolved into some highly systematic and elaborated versions (McCormick, 1983; McCormick, Jeanneret, & Mechan, 1972; Menne, McCarthy, & Menne, 1976; Primoff & Eyde, 1988. Over the years, there has also been scattered research with more broadly applicable, micro-level task analyses, some utilizing thinking-aloud protocols of individuals engaged in task performance (e.g., Brigham, 1932; French, 1965; see also Anastasi, 1988, August). More recently, cognitive psychologists have been developing sophisticated procedures for micro-level task analysis, and have applied these procedures extensively to functions

ranging from simple laboratory tasks to complex forms of human thinking by experts in various fields of achievement.

Despite the impressions created by popularized versions of the so-called cognitive revolution, some of the leading cognitive psychologists have identified significant linkages of cognitive psychology with psychometrics, as well as with other established areas of psychology (Ericsson, 1987; Estes, 1974; E. Hunt, 1987; Simon, 1990). For instance, the micro-level task analyses developed by cognitive psychologists are especially appropriate in the development of diagnostic tests and instructional programs to fit individual needs. Analyzing an individual's performance into component processes should help us to pinpoint each person's strengths and weaknesses and thereby enhance the diagnostic use of tests. This in turn should facilitate the tailoring of training programs to the individual's needs.

On the other hand, for selection and classification purposes, tests of broader traits, identified through correlational and factor-analytic procedures, are proving more effective. A possible reason is that, except at the most elementary levels, information-processing skills tend to be domain-specific and are acquired as the content domain is mastered. Now, the traits identified through factor analysis cover chiefly content domains. Hence, it is possible that such traits may be indirectly identifying clusters of processing skills appropriate for the given

content domain. Thus, high performance in verbal aptitude may indicate that the person has developed good information-processing skills for handling verbal functions; the high performer on quantitative or spatial tasks may be displaying good information-processing skills required in those content domains. This may explain why the trait approach has proved so effective in predicting real-life performance.

At a more theoretical level, let me cite Susan Embretson's comprehensive concept of construct validity, which merges cognitive and correlational approaches. Embretson (1983, 1985) describes two principal aspects of test validation. The first, construct representation, uses the various procedures of cognitive task analysis to identify information-processing components and knowledge stores required to perform the tasks set by the test items. The second, nomothetic span, uses correlation with other measures, including other tests, criterion data, and other real-life information, to provide the network of relations within which the test scores are embedded. For tests to have both a scientific rationale and practical utility, both kinds of validity information are needed.[1]

UNIFYING TRENDS IN OTHER FIELDS OF PSYCHOLOGY

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[1]For other suggested uses of task analysis in combination with factor analysis, in research on the nature of intelligence, see Anastasi, 1986,pp.196-197;1988a).

I have cited seven examples of unifying trends within my own specialty, psychometrics. These examples were chosen because they seemed to be especially significant and worth pursuing further. Having found more evidence of convergence within psychometrics than is generally recognized, I looked around to see what was happening in other fields of psychology. Even a casual glance revealed a most encouraging picture, with instances of convergence in virtually every field. Although it is beyond the purpose of this paper to discuss developments in other fields, two examples quickly caught my attention. Because of their scope, comprehensiveness, and potential impact, they are developments that should interest all psychologists. Fortunately, they have both been so fully covered in recent publications, that I need to do little more than mention them.

One pertains to the evolving linkage between the experimental psychology of learning and the educational psychology of instruction. This development has been summarized with admirable clarity and thoroughness by Robert Glaser in the January, 1990 American Psychologist, among other sources (Glaser, 1990; Glaser & Bassok, 1989). For several decades, what would seem to a natural linkage between the science of learning and the practice of education was conspicuously absent. A major obstacle, which alienated many educators, was the focus of much learning

research on extremely simple performance -- by animals, by young children, or by college students -- on contrived laboratory tasks. Although essential for investigating basic behavioral principles under carefully controlled conditions, these types of experiments were not enough to cover all that learning involves in the lives of twentieth century humans. It was one of the major contributions of cognitive psychology that learning research was expanded to cover complex human intellectual functions and to include task analyses of both novice and expert performance in many real-life activities. Glaser and his associates have themselves been major contributors to the evolving links between experimental psychology and education, and their own continuing activity augurs well for the viability of this particular convergence.

The second example comes from clinical psychology, or more precisely, from psychotherapy. For several decades, the number of psychotherapy "schools," differing in theoretical orientation and in therapeutic procedures, has been growing at an astounding rate. Estimates of the current number range from 250 to over 400(Beitman, Goldfried, & Norcross, 1989; Norcross, 1986). As early as 1930, some psychologists advocated the search for common principles of psychotherapy (see Goldfried, 1982, chaps. 1-5; Goldfried & Newman, 1986); and basic integrative research dates back to the 1950s (e.g., Dollard & Miller, 1950).

However, the current comprehensive rapprochement did not begin until the mid-seventies (e.g., Wachtel, 1977). Some of the momentum for convergence arises from the realization that client treatment would benefit and the training of clinical students would improve from the identification of essential common elements and the utilization of the most effective components from different psychotherapies. Further momentum is provided by professional concerns about the confused image of clinical psychology presented to the public, including potential clients, government agencies, the courts, and third-party insurance payers.

The present integrative movement is pressing forward at such an astounding rate as to constitute a significant event in the history of psychology. It envelops such diverse orientations as the behavioral, psychodynamic, humanistic, and many more. A clear picture of what is happening can be found in two recent books, one edited by Marvin Goldfried (1982), the other edited by John Norcross (1986). Unlike most edited books, these two are themselves so well integrated as to truly fulfill the purpose for which edited books were designed. The movement itself is spreading through many channels. There is an avalanche of articles, books, symposia, conferences, and workshops; new journals have been established and national and international societies formed specifically to explore and facilitate psychotherapy integration. According to one account, "The

Zeitgeist is more receptive to integrative efforts than it has ever been before" (Goldfried & Newman, 1986, p. 55).

As a byproduct, the integrative movement is stimulating the systematic exploration and classification of diagnostic categories, of therapeutic processes, and of types of therapy outcome. The identification and precise definition of specific variables within each of the three domains should in turn permit well designed research on the effectiveness of psychotherapy -- research that has heretofore proved to be virtually impossible. There is, in fact, a resurgence of research in this area, with extensive NIMH (National Institute of Mental Health) participation (e.g., Elkin et al., 1989; Robinson, Berman, & Neimeyer, 1990; Wolfe & Goldfried, 1988).

CONCLUSION

Unifying trends are all around us, in all fields of psychology. They are there to be found by anyone who looks for them. They occur at many levels of generality, although convergence can be most readily effected at intermediate levels. The linkages can extend in various directions: across theoretical orientations, across major fields of specialization, across methodologies, across cultures, across age levels, between theory and empirical research, between basic science and practice, among others.

At the same time, there are some conspicuous instances of the reverse trend, in which new developments are treated

as revolutionary. In such an approach, existing ideas, theories, or methods are discarded to make room for the new (see, e.g., Appley, 1990, Winter; Deese, 1987; Gardner, 1985; 1988, August). It is as though science were regarded as a zero-sum game.

Several thoughtful observers of the current scene (e.g., Appley, 1990, Winter; Bevan, 1986; Brislin, 1989; 1990, August; Rotter, 1990; Staats, 1970, 1987b) have noted that present reward systems, especially in academic and research settings, may encourage individuals to emphasize the novelty of their own contributions and to eschew efforts at integrating them with existing knowledge. A new theory, with its freshly coined label, attracts maximum attention, thereby contributing to career advancement. Such a strategy may yield short-term benefits for the individual psychologist, but it tends to retard the progress of psychology as a science, its effectiveness in solving practical problems, and its acceptance and credibility by the public. And in the long run, what is good for psychology is also likely to be good for psychologists.

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